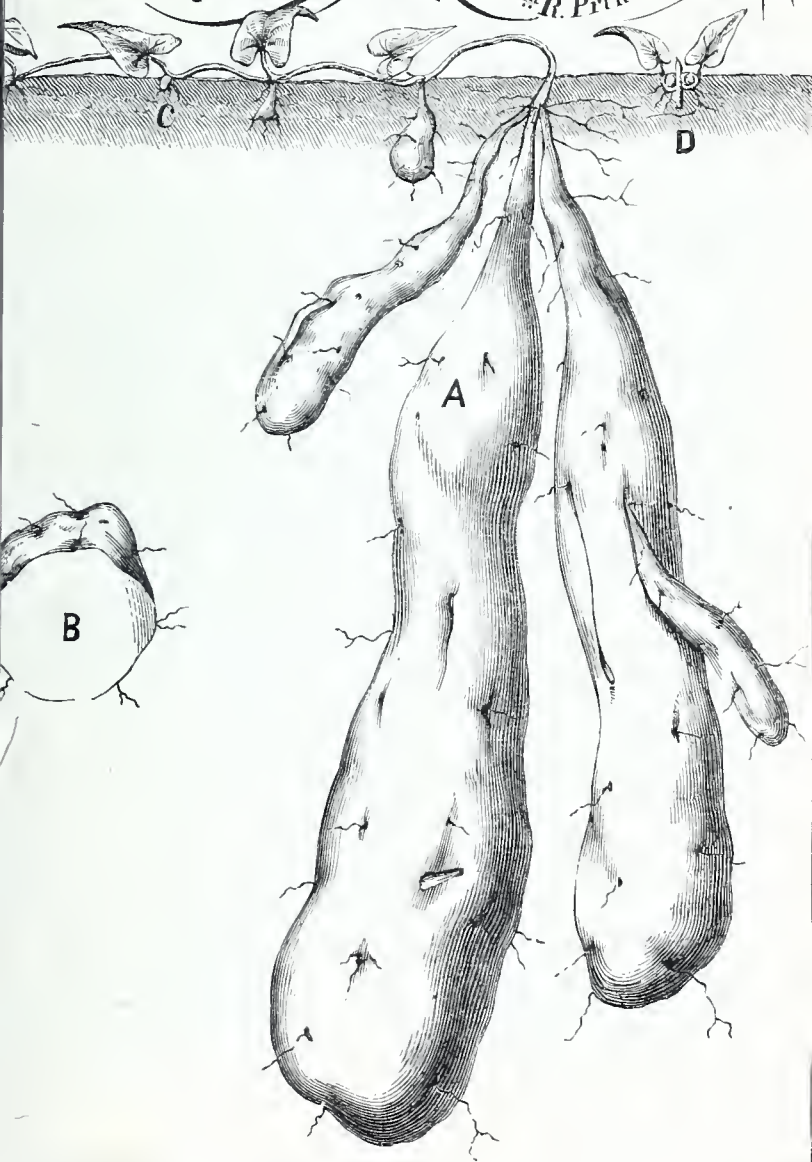


YOSCOREA BATATAS

or  
NEW CHINESE POTATO

Cultivated at the  
Nurseries  
of

Wm R. Prince & Co. - Flushing N. Y.



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## CHINESE POTATO.

*DIOSCOREA BATATAS.**IGNAME DE LA CHINE.**Diacia—Hexandria.*

THIS most important esculent was first introduced to Europe in 1850, it having been sent to France by M. de Montigny, French Consul at Shanghai, in Northern China, who transmitted a few roots to some learned men. It did not however attract their special attention to its great value and immense importance, until the year 1853, when some highly intelligent Botanists recognized the great advantages to be derived from its extensive culture, and devoted themselves to its increase, and to the development of its merits.

Finding this root to be superior in its farinaceous properties to either of the cultivated species of Potato, and that it was in no case subject to decay, whether in the ground or out of it, and was also of so hardy a character, as to withstand the severest winters uninjured, they have now come to the conclusion, in common with English Botanists who have made similar experiments, that the *Dioscorea Batatas* is destined to supersede the precarious and uncertain culture of the ordinary Potato, so liable to rot and other diseases; and that the grand desideratum, a substitute in itself more valuable than the ordinary Potato, has at length been found. So strongly confirmed is this opinion in Europe, that we find it supported by all their leading Agricultural and Horticultural publications, and even by the "*Mark Lane Express*," the principal representative and expositor of the Agriculturists of Great Britain.

Roots of this plant have been produced in Middle and Northern France, weighing two to two and a half pounds, from tubers planted in April and dug in October.

One great point of superiority possessed by it, is that the roots may remain in the ground two or three years, always enlarging in size, and equally nutritious and excellent in flavor. Experiments have proved that when the roots are left for eighteen months in the ground, the yield is

more than treble that of roots left but for one summer, and it is also considered that they are improved in quality.

A plantation of this root is like a permanent Magazine of food, to be dug up fresh for use whenever occasion may require, and perpetuated at small expense. The Chinese Agricultural books state that it is cultivated everywhere throughout that vast Empire. They have as many varieties as we have of the Common Potato, and its culture is as general, if not more so, than that vegetable is cultivated with us. It forms in that country the alimentary basis, on which, together with rice, the vast population is sustained; it being not only used in its natural state boiled or roasted, but also supplying the meal or flour for general use. The snow-white variety is the most esteemed, and it is this which the French Consul sent home, and which we now possess.

In the Spring of 1853, the largest plantation in France contained but seven hundred roots, yet, such is the ease and rapidity of its propagation and increase, that it is already becoming most remarkably disseminated. Its growth is very rapid, and it seems suited to any climate and to any soil, although a sandy loam or sandy soil has been deemed preferable in Europe, where their sun-heat is so much less powerful than with us. It has been tested *here* in sandy and in stiff loam, and grew vigorously in both; and from analogy it is more than probable that it will do well in humid soils. It may here be deemed worthy of note, that, in addition to the great similarity in the genera and species natural to China and North America, one of our most common native plants (also a vine) is the *Dioscorea villosa*, found in great plenty in hedge-rows and on the borders of ravines, from Canada to Carolina, and everywhere called "*Wild Yam*"; and that another species is found growing very abundantly in Virginia and Carolina. It is therefore only placing the *Dioscorea Batatas* among its relatives and congeners, when we introduce it to the American soil.

One very peculiar character of this plant is, that its roots run *perpendicularly* into the earth, thereby greatly enlarging its capacity to produce the greatest possible crops from a given space of ground. It has been calculated in the French publications from the experiments there made, that an acre will, in six months, produce 36,000 pounds, and in eighteen months, 120,000 pounds.

It possesses another great advantage:—the roots when placed in a cellar remain firm and perfect, as well as free from sprouts, and they can be kept out of the ground a year, without injury or deterioration of their alimentary qualities, and this property renders them invaluable for use in long sea voyages, and especially as a preventive of scurvy.

We deem this plant much better adapted to cold than to hot climates, as it has been proven that the greatest increase in the size of the roots takes place during the coldest period of our Season—the Autumnal

months. The roots grown here the past summer, when dug at the end of October, were found to be in a vigorous state of growth.

Notwithstanding the fact that this root, as has been already stated, may be propagated with great rapidity, still the demands from all quarters, on the first cultivators, have been so rapid and numerous, that it has been found impossible to obtain any considerable supply for our country, and but limited quantities will be attainable the present season. In fact many years must elapse before even moderate supplies can be furnished to the numerous countries which will strive to establish its culture.

The manner of cultivation is extremely simple, and the same course can be pursued as with the Common and the Sweet Potato. It is said that the Chinese cultivate it in hills, as we do Indian Corn, and plant but one tuber or piece of root in each hill, and plough between the rows twice during the summer, to keep them free of weeds. We doubt this statement:—first, because the Chinese exercise the utmost economy in the use of the soil; and secondly, because the labor of that country is generally manual. If cultivated in hills, we think that three or four pieces should be planted in each; but we would suggest the planting them in double rows, and they will then need to be ploughed but one way. We think, by adopting this course, a greater yield may be obtained from an acre, and at less expense than otherwise. In several of the Western States, where land is cheap and no manure required, and where the soil is so easily tilled, it will probably be most advantageous to cultivate them in single rows, as is usually done with the common Potato. It will be seen that, by growing this root as a biennial crop, the labor of annual planting, which is indispensable with the two other species of Potato, is diminished one half. It seems also highly probable that the seed tubers may be planted in Autumn, immediately after the regular crop has been taken up, which would be an additional saving in labor.

In the Chinese books it is stated to be a mountain plant, and especially hardy, its common appellation being "*Arum of the mountain*." It is generally cultivated in sandy soils and on terraced hill-sides, where little else could be grown.

Having had opportunities during the past Autumn, of testing the quality of the *Discorea* grown in this country, the following will serve as a brief description:

Leaves opposite, triangular-cordate, deep green; Flowers, diœcious, composed of six petals, pale yellow, in clusters springing from the axils of the leaves. The male plant only has been introduced to Europe and America, and consequently no seeds can be yet produced. Root fifteen to



twenty-five inches long, and two inches in diameter, tapering to the head the outward appearance similar to the white variety of the Sweet Potato; skin thin, readily peeling off when cooked; flesh snow-white, delicately farinaceous, with a slight Almond flavor, exceedingly grateful when used in the same manner as the ordinary Potato, and deemed both richer in nutrition and superior in quality. It can be cooked by water or steam or roasted, and in appearance and taste is like the finest mealy variety of the common Potato. It requires but ten minutes boiling, whereas the common Potato requires twenty minutes.

This root possesses another great advantage: it produces a fine, pure white flour, which will compare advantageously with the Wheat Flour of any Country, and is equal if not superior in nutriment.

The introduction of this invaluable vegetable is too recent for us to know all its qualities, it having been tested for but four years in Europe and only one year in our own country. It may, however, be fairly assumed that *a vegetable which has for centuries formed the common food of the immense population of China and Japan,—adopted as such by nations so regardful of domestic economy, and so careful and economical in their appropriations of the soil, MUST BE possessed of no ordinary merits.* Such we should consider to be the character of this vegetable, combining as it does, the circumstance of immense product, diminished comparative labor, and an adaptation to soils where scarcely any other root will grow with the additional fact of its remaining in the ground during the winter and for a period of three or more years, furnishing throughout all seasons a fresh, wholesome, and nutritious aliment for all classes at the cheapest rate.

On the whole, we may consider ourselves justified in believing, and confidently asserting, that the acquisition of this esculent in Europe and America constitutes an era in Agriculture equaled only (if equaled indeed it be) by that which was consequent upon the introduction to Europe of the Indian Maize of our own Continent. The fact is certainly most astounding that we have remained thus long entirely ignorant of so invaluable a vegetable,—one which is destined soon to cover myriads of acres, and which, but for that great malady, the Potato Rot, we should probably be still unacquainted with, as it was the prevalence of that malady which induced the Consul of France to send home this root as the most appropriate substitute.

### PERIOD OF PLANTING, AND PROPAGATION.

As the Dioscorea is perfectly hardy, the tubers, as hereafter described or small sections or eyes of the root (the same as potato-sets) may be

planted at the first opening of spring at a depth of about 3 to 4 inches, but, during the present scarcity of this root, the course has been adopted of planting the sets closely in an ordinary hot-bed frame to start their growth, and afterward planting them in rows in the garden or field. The same culture as pursued everywhere with the Common Potato will serve successfully for the Chinese one.

The propagation of tubers for the extension of stock is also very simple. Like the Sweet Potato, the *Dioscorea* is a trailing vine. In six weeks from the time of planting the tubers or pieces of root, they will have formed shoots 5 to 6 feet in length. These shoots may be buried for two-thirds their length in slight furrows, one inch deep, allowing the leaves alone to be out of the earth, and the extremity of the shoots entirely so. Another mode is to take off two-thirds of each shoot and cut it into sections, each having a leaf with a small portion of the stem, (*D. plate*) and planting these in a bed, covering all but the leaf. In either case they will make roots after the first rain, or if watered, and in twenty or thirty days they will form a bulb or tuber at the joint near each leaf or at the axil. These must be carefully preserved when taken up in the fall, and will serve for spring planting the ensuing season; the tubers being as valuable and productive as sections of the roots. Tubers the size of a large pea, planted in the Spring, form beautiful regular roots fifteen to twenty inches long by Autumn, as has been fully proven *here* the past season, in confirmation of the European statement.

In France they state the increase from a tuber or piece of root, as being several hundreds; and we should with our experience consider a hundred a moderate produce in tubers, in addition to the large root, which may be cut into 30 to 50 sections or eyes for replanting.

For any further information we refer to the U. S. "Patent Office Report," to the "Revue Horticole" and "Bon Jardinier" of France, and the "Mark Lane Express," of England, or to Extracts from these works published in the November and December numbers of the "Horticulturalist," and other leading American Journals.

### EXPLANATION OF PLATE.

A.—General representation of the root formed from a tuber in one season, one-fourth the natural size linearly, or one-sixteenth the size superficially.

B.—Section of root.

C.—Seed tuber formed by covering the vine.

D.—Seed tubers formed from a section of the shoot.

## LICORICE.

*Glycirrhiza Glabra*.....*Diadelphica*—*Decandria*.

The Licorice is one of the most important of the plants that are destined to be added to American agriculture, and it merits at our hands an early adoption, on account of the facility of its culture, its great usefulness for various purposes, and the large profits it yields to the cultivator. When the high-priced lands of England are profitably devoted to it, how much more lucrative must it prove where land is plentiful and cheap, and where, above all, (as is the case in several of the Western States,) the soil is naturally permeable, free from stones, and no manuring required. It is indeed mortifying to American pride to witness the many thousands now annually paid to Europe for an article like this, so simple in its culture, that we ought to be the largest exporters of it, thus adding another item to our *Granary of the World*.

The Licorice is a deep-rooting perennial plant, of the *Leguminosæ*, the roots creeping to a considerable distance. It has herbaceous stems, four to five feet high, with composite dark green leaves. The flowers, which are blue, come out in axillary spikes during July and August. It has long been extensively cultivated in Spain, and since the commencement of Queen Elizabeth's reign it has been largely grown in various parts of England.

The soil for the Licorice should be a deep sandy loam, or other light soil, and be trenched by the spade or by a subsoil plough, or by the aid of both, two to two and a half or three feet in depth, and well manured. The light, permeable soils of our Western States, which are enriched by nature, are the soils preëminently suited to the most profitable culture of this plant.

The propagation is by cuttings of the root, and usually the small sid roots are taken for this purpose, and made into cuttings 4 to 6 inches in length. The planting season may be either Autumn or Spring, as most convenient. The cuttings should be planted in rows, two and a half to three feet asunder, and at the distance of eighteen inches in the row. During the first season, the plants do not attain a height of more than a foot, and the space between the rows may be used to grow onion, lettuce, beans, or similar vegetables. Keep the ground free from weeds, and, after the subordinate crop comes off, hoe and dress it well, when for economy, a horse-hoe or cultivator may be used. During the second and third seasons a crop of vegetables, covering less width than the first may be grown, each year allowing additional space to the increasing stems of the Licorice. Every autumn the haulm should be cut and removed after it becomes withered. As this plant spreads its roots rapidly in every direction, they will form a complete mass, yielding immense crops.

At the end of the third Summer's growth, the roots will have increased so as to be taken up, which is usually done by commencing at one side of the field and trenching over the ground. The roots can be immediately sold to the brewers, distillers, druggists, and other consumers and venders, or they may be preserved in sand till wanted for use. If, however, they are intended for transportation, they should be dried, and tied in bundles.

Licorice is used very extensively in brewing porter, and in medicine and various other preparations where saccharine matter of this description is desirable.



## TANNER'S SUMACH.

The trees that bear this title are the *Rhus Coriaria* of the South of Europe, and *Rhus Copallinum* of our own Country, the latter bearing greater similitude to the European species than to any other of those which are natives. The European species cannot be cultivated with success north of the Potomac. It is therefore to the American more hardy and more vigorous species, that we must look for successful cultivation in the Northern, Middle and Western States. It is found from Massachusetts to Carolina, growing vigorously on the banks of ravines, on the uplands adjoining swamps, and sometimes in sandy woods. Considerable quantities are annually collected in some parts of our country; but the amount is so limited in comparison with the great demand, that several hundred thousand dollars are paid each year for the imported article. Will not some of our enterprising citizens engage in the extensive culture of a shrub so easily grown on our least valuable soils?

The propagation of both the European and American species is by seeds, or by young trees two or three feet in height. The former attains at full growth a height of four to five feet, and the latter eight and sometimes ten feet.

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## SWEET ALMOND.

It is a matter of much astonishment that the easy culture of this tree has been neglected. It will bear abundant crops in any State South of the Potomac. It flourishes in ordinary light soils, sandy or otherwise. The trees should be planted in orchards, at the distance of eight to ten feet each way. The same culture as is given to the peach is all that is required for the Almond. There are four principal varieties that are articles of commerce; Oval Hardshell, Long Hardshell, Softshell, and Ladies' Thinshell. The climate of California is found to be very suitable for this tree, as well as for the Fig, Olive, Pomegranate, Pistachia nut, &c.

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## FIG.

This tree will flourish in almost any soil, is of vigorous growth, and usually produces two crops in a season. Indeed many varieties do this invariably. It will support the winters at Baltimore with but moderate protection, and South of the Potomac will stand without protection. In orchards the trees should be planted at a distance of eight feet each way, and be formed into Standards. The crops are very large, and our cities offer extensive markets for the fresh fruit, and the surplus product could be dried for after use. There are more than fifty varieties cultivated in the South of France and in Italy, but a selection of from six to ten varieties, ripening at different periods, would suffice for an orchard.

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## EUROPEAN OLIVE.

In the region of Wilmington, N. C., and South of it, this tree will withstand the winters and flourish. They may be trained as low Standards, the orchards being planted in rows about six feet asunder either way. As the Fruit and the Oil of this tree form important articles of commerce, our attention ought to be given to its culture.

## SUPPLEMENT TO THE FOURTH EDITION.

## ADDITIONAL REMARKS ON THE CHINESE POTATO.

In now presenting the fourth edition of 3000 copies to the public, the previous 6000 having been exhausted in five weeks, I deem it a duty to add some further comments in a way that may be useful.

I have taken pains to inform myself fully in regard to the *Dioscorea batatas*, or Chinese Potato, both in relation to its alimentary position in China and Japan, and to its appropriateness for adoption by our country; and the more I have investigated, the more astonished I have become, at its *indisputable claims over every other esculent we possess*, and at finding that the half, and more than the half, of its remarkable and useful properties remained to be told. The surprise so often expressed, as to how food was attainable by the one-third of the inhabitants of the globe, concentrated within the limits of the Chinese Empire, may now find its elucidation. On consulting several Chinese Agricultural works, which have been republished in the French language, I find the *Dioscorea batatas* to be therein a subject of extensive and general comment. It is there stated that its culture is universal, and extends over every portion of that vast country. And it is further declared to be a grand resource of the nation—“*une grande ressource nationale*,” and that the abundance of its crops, their excellence in quality, and the universal consumption, have rendered it the alimentary basis (together with Rice) of that immensely populous empire. It is eaten boiled, roasted, and even in a raw state. It is also dried and ground into the meal or flour everywhere in use throughout that country, and is admirably adapted to the manufacture of superior starch. Indeed, it would appear to occupy, in an alimentary point of view, the whole space which in our country is occupied by both the Common Potato and by Indian Corn. The varieties there cultivated are very numerous, the skin and flesh being of different shades, varying in consistency and flavor; and one variety is highly esteemed for its medicinal properties.

In five Chinese works which I have consulted, I have found the following statements: The *Imperial Rice-white* variety (the one we possess) when well cultivated in a soil that has been trenched and rendered permeable to the depth of five feet, will produce on a space of ground 10 feet long and 3 feet broad, sufficient food to support a man throughout a year. It would thus appear that this vertical root enables them to make up by deep culture of the soil, whatever deficiency exists in that country superficially towards the maintenance of its excessive population. The only kind of manure recommended is that of cattle and horses, well decomposed; and *poudrette* is specially objected to by every writer; though we doubt not that Guano might be thus appropriated. In their directions for general culture, they state that the ground is usually mellowed to the depth of 2½ feet, but that 3 feet is preferable; and that the manure should be plowed or trenched in as deeply as possible. The sections of root, each having one or more eyes, should be planted four inches deep; and this planting takes place in China the first week in April. When treated in this way, the plants will grow vigorously, and will not fail to yield an abundant crop. Some cultivators allow the stalks to trail on the ground in like manner as our Sweet Potato; but others, as soon as the stalks have attained sufficient growth, place poles for them to run upon, which they quickly entwine. In the autumn, before the ground becomes frozen, they dig up sufficient of the large roots, and place them in a cellar for winter use; and the small roots and tubers are put in a cellar and mixed with sand, or are buried in a hole in the open ground, intermixed with sand, as the reserve for spring planting. Such portion of the crop as is not wanted for use or sale during the winter, may be left in the ground; and can be extracted in the spring, if desired, or left to grow through the second season, when the crop will be increased threefold over the weight of the first summer's growth. What strikes one's mind at once as giving preëminent importance to this root, is the fact, that it is in a condition for use *at all seasons of the year*, and may be dug up fresh every day from spring to autumn. In order to settle the question of its perfect hardihood in our climate, we have left twenty hills standing out the present winter, during which the mercury has been 10 degrees below zero, and which has been altogether the severest season known in this latitude for 70 years. Probably we have here no record of one of greater severity. Now I apprehend that when the earth is frozen to the entire depth of any plant within it, the hardihood of that plant is tested quite as effectually with the mercury at 10 deg. below zero as at 40 deg. below that point. The effect of the cold upon the plant must be the same, and the only relative question must be as to its long continuance.

A sandy, permeable soil is spoken of as the most suitable to it, and it is very generally grown on hill sides, which are terraced for that purpose, and which, being the least suitable for other productions, are selected from economical considerations.

Professor Decaisne of the Paris Institute, remarks in the “*Revue Horticole*,” that from the epoch of the introduction of this root in 1850 it has continued to excite the lively attention of agriculturalists by the various excellent properties it combines; and in announcing

the experiments made by himself and others, and their results, he declares it to be of the most hardy character, "*une plante rustique dans toute la force du terme.*"

And (he says) when we take into consideration the *vertical* extension of this root, and the diminutive size and shortness of the *lateral* radicals, which seldom extend beyond three or four inches, together with the vigorous growth of its shoots and their profuse foliage, (the latter clearly denoting that it receives the greatest portion of its nutriment from the atmosphere) we shall conclude that at a distance of eight to nine inches asunder in each direction the plants will have a sufficient space for their normal development. This is the distance he recommends for adoption, and also that the tubers or pieces of root be planted in beds comprising three parallel rows, with a twelve-inch walk between the beds and he has made his plantations in the open ground at the middle of April. The results of three plantations grown under his direction from pieces of root  $1\frac{1}{4}$  to  $1\frac{1}{2}$  inches in diameter were eminently successful. The roots, three days after digging them, weighed 8 to 14 ounces each, the whole quantity averaging  $10\frac{1}{4}$  ounces, and some which were grown from whole roots weighed from  $2\frac{1}{4}$  to  $2\frac{3}{4}$  pounds each. An acre planted 9 inches apart, averaging the crop at 10 ounces each, would yield more than 48,000 pounds, (about 700 bushels) and although this is a calculation based on good culture, he considers that under any circumstances the crop will be much greater than that of the Common Potato. When, moreover, we take into further consideration the vertical growth of this root in its immediate connection with the magnitude of the crop, we cannot fail to arrive at the conclusion that with deep culture it will greatly exceed the product of that species, and some idea of the relative crops produced by vertical roots may be derived from the results of the beet and carrot culture, although neither of these attain to the average length of the Chinese Potato.

During its present scarcity, this root might be further increased by seeds, but unfortunately one sex only of the plant was received by the French Consul at Shanghai, and consequently no seeds can be produced. Its propagation has therefore necessarily to be confined solely to the increase by tubers and sections of the root.

As the quantity each person may cultivate the coming season will necessarily be limited, we would urge that extra attention be paid to preparing the ground, in order thereby to enlarge the crop. We would therefore recommend that the ground be trenched and rendered mellow to the depth of three feet, and that decomposed stable manure be intermingled throughout and down to the very base.

In regard to propagation, as 130 tubers and sections of root may be considered a reasonable crop from one, it follows that 100 tubers multiplied for two years, will yield 169,000, which at \$3 per 100, would amount to \$5000, and at only \$1.50 per 100, to \$2500; and as not only our own extensive country, but every country in Europe, is to be supplied, the price for several years will necessarily be speculative.

Professor Decaisne further remarks: "The hardihood and nutritive qualities of this new alimentary root are all that can be desired, and I do not think there exists *any* serious objection to its use in our domestic economy. The results of all our investigations fully prove that the course of culture may be varied according to the different localities, and that no serious impediments exist to its general culture, even with the very simple implements used in Chinese agriculture; and it is very certain that we possess greatly superior and more powerful implements for mellowing the soil to a convenient depth. There is a striking analogy between the culture of the Dioscorea and the Sweet Potato, in regard to the soil best suited and to their both being vines forming tubers from the joints. One great point which for eight or nine years has agitated the public mind is now fully set at rest, which is, that no one of the plants which have been hitherto announced as a probable substitute for the Common Potato can enter into any comparison with the Dioscorea batatas. We all can recall to mind the infatuation which has existed (in Europe) in regard to the Psoralea esculenta, the Ulluco, Apios tuberosa, Tropaeolum tuberosum, Arracacha, Helianthus tuberosus, Fritillaria imperialis, and also the Sweet Potato, so productive in warm climates, but yet so difficult in its preservation, that it is still cultivated as a garden plant, and has never, in this country, (France) been extended to field culture.

"In addition, we must not fail to take into consideration the *domestication*, (not the naturalization,) which of itself is a laborious task, exacting centuries of care and culture. A *wild* plant, even the most promising in its character and appearance, will resist for a long time every tendency to domestication, however rational and persevering may be our efforts; and it will be remembered that whenever our agriculture has been enriched by the introduction of a new vegetable which has promptly repaid the care we have bestowed upon it, that vegetable has invariably been one which had been *previously domesticated for centuries in its native country*. This has been the case with Indian Corn, the Cotton plant, the Common Potato, Opuntia, Rice, Coffee, and others, and as absolutely so as if the period for all domestications had passed, and that man should now confine his wants within the circle that he has occupied for thousands of years. The *naturalization* of plants, although incomparably easier than domestication, is still much less frequent than is generally supposed.

"The Chinese Potato has already fulfilled every condition required of it. It has been domesticated from time immemorial; it is perfectly hardy in our climate, (Paris, 43 deg. 50 min.,) and has even so proven to the very shores of the Rhine; its root is very large,



rich, nutritious, eatable even in a raw state, easily cooked, and of very agreeable flavor. It is in fact a perfect food—"un pain tout fait,"—possessing all the advantages of the best common potatoes, but superior in quality, and much richer in nutritive matter, and also very far superior to the sweet potato. It is devoid of all fibrous or ligneous substance, and it remains perfectly sound and free from sprouts equally in warm and cold weather throughout the year.

"When we consider the manner in which our gardeners and agriculturalists have seized upon this plant, making experiments with it in the various climates and the different soils of France, and the extreme interest they have manifested by exercising their skill and perseverance in a labor so truly patriotic—when we witness it everywhere becoming the object of public attention, and not a week passing that the Directors of the National Museum of Agriculture do not receive applications from every part of France, and also from foreign countries, for tubers and for directions for its culture, we entertain a firm conviction that the Chinese Potato (in the same manner as the Common Potato has done in its time) will not fail to build up numerous fortunes, and will serve to alleviate many of the grievances of the laboring communities. And even if we may indulge the hope that the maladies of the ordinary Potato are only temporary, that malady will have proved of Providential benefit by having caused us to adopt a plant superior in flavor and much richer in its alimentary properties, and probably destined to impart greater benefits to mankind than even the Common Potato has done. May it not then be safely predicted of the Chinese *Dioscorea*, that, among those nations which shall adopt its general culture, famine will henceforth be an impossibility?"

Such are the deliberate sentiments of Professor Decaisne, a man devoted to scientific research under the auspices of the French Government; a man in no way peculiarly interested in the introduction of this esculent; one whose reputation as a scientific man is to him infinitely above every other earthly consideration; a philanthropist zealously devoted to the advancement of agriculture in France, and now endeavoring to ameliorate the condition of the millions by the adoption of an appropriate substitute for the failing and uncertain Potato.

There is a most striking circumstance connected with the adoption of this new esculent, giving it precedence over the Common Potato, that is worthy of the deepest consideration. It is a well known fact that the latter is a native of a tropical climate, and has been forced into a state of domestication in direct contrariety to its natural habit, whereas the Chinese Potato is a native of the northern section of the temperate zone. The latter is consequently injured by nature to a very cold climate, and capable of resisting our northern winters unharmed, when the other species would most assuredly perish. It is, indeed so tender as to be frequently affected and rendered valueless by frost even in our cellars, and millions of dollars worth have been thereby destroyed the present winter, whereas under the same circumstances, the Chinese root would have remained unharmed.

In this age and among intelligent Americans, where we find the minds of men rising above the narrow views and habits of by-gone ages, and devoted intently to utilitarian objects, we may deem the epoch of prejudice to new improvements, and to the introduction of new vegetable productions to have subsided, and that moon influences and ghost tales have become obsolete. Great attention has been given to improvements in the breeds of our cattle, horses, sheep, and other animals, as well as to the various modes of cultivating the soil, to drainage, manuring, and to the harvesting of the crops; and I trust we are equally desirous to introduce all such trees and esculents as may be beneficial, and above all to adopt a plant of such various excellent qualities, and whose capacities for yielding a greater crop than any other vegetable known, will serve to more than replace the ordinary potato. By this wise substitution of a plant which may be grown so economically as to always afford the cheapest and best food, attainable to the poor at the lowest possible rate, we shall render most essential benefits to the laboring and down-trodden portion of the community, and greatly aid in ameliorating their condition; and above all we shall redeem society from the anxieties which have existed in consequence of the maladies that have threatened us for years with a total deprivation of our hitherto most reliable esculent.

#### *Distinction between the new Chinese Potato, or Dioscorea Batatas, and the Japan Potato, or Dioscorea Japonica.*

These two plants have been and still are confused by many, and as the one is so much more hardy, and of so much greater alimentary value and importance than the other, a proper discrimination is indispensable.

Prof. Decaisne stated in the "Revue Horticole" for 1854, that the *Dioscorea Batatas*, which was first received from China in 1850, was an entirely distinct species from the *Dioscorea Japonica*, which had for some years previous been an occupant of the green-houses, and which, in some circumstances, had been grown in the open ground during the summer months. It is the former which he has so highly commended, and which he deems of such inestimable value. In the "Revue Horticole" for 1855, he has most fully confirmed his previous position, and has given engravings showing the very distinct characters of the two plants, which he deemed essential, as a casual observer of these two trailing plants might mistake the one for the other. These explanations of Prof. Decaisne are of the highest importance, as we already find the two species are being disseminated

confusedly and without proper distinction, a circumstance calculated to lead to many future disappointments. Those who will recur to pages 69 to 74 of the publication referred to, will find ample delineations. These he has accompanied by a caution against the confusion which exists in France, and which is now being extended to our own country by importations of both the species. It appears that Mr. de Montigny, French Consul at Shanghai, in accordance with the instructions from his Government to seek out the most appropriate substitute for the Common Potato, which had become so subject to various maladies, instituted a thorough investigation of the qualities of the numerous varieties of the *Dioscorea batatas*, and after this research, he transmitted to the National Museum of Agriculture at Paris the *Imperial Rice-white* variety, as far surpassing all others in excellence, remarkable for its snow-white flesh, and for yielding a beautiful, pure white flour. Being determined at the outset to make our experiments on a sure basis, we adopted such measures as secured to us the highly approved variety referred to, and the results of our own culture have fully proved the accuracy of the roots we received, whose color and general excellencies have been already described.

W. M. R. PRINCE

## LICORICE—Additional Remarks.

To the information already given, I will add that the more loose and permeable the soil may be naturally, or as the result of deep cultivation, even to the depth of two or three feet, the more abundant will be the crop. The roots penetrate to a great depth, taking complete possession of the soil; and the deeper the ground is opened for the purpose of removing the crop, the more vigorous and abundant will be the succeeding one—as is pretty nearly the case in removing a crop of horse-radish. No other cultivation is given to it than the removal of the crop thus spontaneously produced, unless to grow small vegetables in the intervening spaces the first and second years. By the third year there will be little or no unoccupied space for such purpose. In England the Licorice is sold almost wholly in its fresh natural state, to the brewers, distillers, druggists, and other consumers. In Languedoc, and other parts of France, as well as in Spain and Sicily, it is found growing naturally, and the crop is mostly manufactured into the Licorice-paste of commerce, and a moderate portion only is dried and bound into bales of a suitable size for export. The juice is very abundant, and is greater in proportion to the depth at which the root is grown. It is expressed from the roots much in the same way that oil is from olives. They are first washed perfectly clean; then crushed in an olive mill; then boiled four or five hours; next pressed in an olive-press, and the juice thus extracted is slowly boiled in an iron vessel until it attains the proper consistency.

The annual importation of the dry root to the United States varies from eight hundred thousand to a million of pounds; and of the licorice-paste there is annually imported about three millions of pounds. The price has been steadily advancing during the past five years, notwithstanding the annual increase of the importations. This has doubtless arisen from its more general application, as well as from the increase of those manufactories which have usually consumed it. The dry root now sells at 7 cents, and the paste at from 14½ to 24 cents per pound. That from Sicily commands 14½ to 17 cents; and the Calabrian, which comes in large rolls, 21 to 24 cents. An imitation Calabrian is also imported, which sells at 17 to 20 cents. A great quantity is imported from Spain, and that from Alicante ranks among the very best. I have been unable to find any statement of the product per acre of the dry or paste-liquorice, but it would seem that the fact of an abundant crop from so vigorous a plant is everywhere deemed a natural and inevitable result.

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## PRICES.

CHINESE POTATO, OR *Dioscorea Batatas*.—*Imperial Rice-white* variety, the very superior one selected by Mr. de Montigny, from above 50 varieties, and transmitted by him to the French Institute. Genuine, sound, of American growth. Five for \$5. Twelve for \$10. Hundred for \$83. Packed in sealed Tin cases, in which they can be safely sent by express. The imported tubers are frequently imperfect, as only the poorest are sent to this country. After the 10th March we will supply them dry, as above, or, if preferred, they will be sent growing in pots, at \$12 per dozen. These can be securely packed to go any distance. As the number we can dispose of is limited, we shall record the orders which are accompanied by remittances, in the rotation in which they are received, to the extent we can supply, and forward them immediately, or retain them subject to



order to be sent later, and the surplus remittances will be promptly returned to the applicants. Tubers can be sent per mail, at small expense.

N. B.—No person need consider his order as accepted, unless the remittance is enclosed.

JAPAN POTATO, or *Dioscorea Japonica* (totally distinct from the above), as described by Professor Decaisne, and cultivated for some years in Europe, before the hardier and superior Chinese species was introduced, \$18 per hundred.

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